



EVALUATION OF TONGUE POSITION IN COMPLETELY EDENTULOUS AND PARTIALLY EDENTULOUS PATIENTS – CROSS SECTIONAL STUDY

Prosthodontics

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ABSTRACT

Introduction: Poor denture retention and stability maybe attributed to presence of abnormal resting tongue position . The presence of retracted tongue position is seen to be greater in completely edentulous individuals than partially edentulous individuals. **Aim:** To evaluate resting position of tongue in partially edentulous and complete edentulous individuals and to evaluate the tongue position using Wright's classification. **Materials And Methods:** A total of 100 study subjects were classified into two groups based on edentulousness. Group A: completely edentulous subjects .Group B : partially edentulous subjects. **Results:** Among the study subjects, 51% had class I tongue position. 30% had class II tongue position and 19% had class III tongue position. **Conclusion:** After evaluating the tongue position in complete edentulous individuals and partial edentulous individuals there was higher percentage of class I tongue position compared to class II and class III in both groups .

KEYWORDS

INTRODUCTION

Before the fabrication of complete dentures the anatomy and physiologic characteristics of the tongue and its environment should be evaluated thoroughly. The tongue helps to stabilize the complete denture and engages in normal physiologic actions such as speech, mastication and deglutition. The size, strength, state of health, movement patterns and resting position are the functional abilities of tongue. The prosthodontic treatment for the edentulous mandibular jaw can lead to poor denture retention and stability due to the presence of an unfavourable resting tongue position . This retracted position leads to a broad lingual sulcus displacing the tissues overlying the sublingual gland posteriorly; as a result the seal between the mucosa and also the denture periphery is broken. Wright CR et al., were the first to publish on tongue position and its relation to denture stability and researchers have classified tongue position into normal and abnormal tongue position with the relevant distinguishing criteria. It's been concluded that, the abnormal tongue position develops as a reflex and relates to certain functional or parafunctional habits.

At birth, all possess a traditional tongue position and therefore the abnormal is that the one which is developed because of aging, abnormal swallowing habits and missing teeth. It is evident from literature that, the prevalence of retracted tongue position is common in completely edentulous condition regardless of duration of edentulousness .This study was undertaken to judge resting tongue position and also to assess the efficacy of an easy modification of complete denture together with certain tongue exercises to reorient retracted tongue position to normal position.

MATERIALS AND METHOD

A randomized cross sectional study was carried out in the Department of Prosthodontics over a period of 6 months from 2021 to 2022. A total of 100 study subjects participated in the study. Hence, the study considered minimum of 50 subjects in each group, completely edentulous was in group A and partially edentulous in group B. 73 male and 27 female patients were examined.

Wright classified the tongue position as follows,

Class I: The tongue lies in the floor of the mouth with the tip forward & slightly below the incisal edges of the mandibular anterior teeth.

Class II: The tongue is flattened & broadened but tip is in a normal position.

Class III: The tongue is retracted & depressed into the floor of the mouth with the tip curled upward, downward or assimilated into the body of the tongue.

DMFT Index was noted along with CPITN index in the examination. The resting tongue position was observed while the patient was unaware of the dentist examination. In this study, the resting tongue position was recorded at the start of the examination. Additionally, the position was checked at the top of the examination, after the patient had made a conversation and felt somewhat more relaxed. During each examination, the patients were instructed to remain calm and advised to open the mouth slowly so the dentist could observe tongue position. Where the tongue appeared abnormal, the patients were instructed to swallow and open again. The tongue had to look relaxed and free from muscular contractions when the recording was performed. The tongue position was categorized by:

- I. The extent by which the floor of the mouth is visible
- II. The lateral borders, in reference to the lingual surfaces of teeth or lingual side of the ridge
- III. The apex, in relevancy the lingual surface of the teeth or lingual anterior side of the ridge. Using the above criteria, the tongue resting position was grouped.

RESULTS

The results of the DMFT INDEX taken for the overall subjects in maxilla for decayed are 3.1, for missing are 105.4 and for filled are 2.4. The results of the DMFT INDEX taken for the overall subjects in mandible for decayed are 4.2, for missing are 67.6 and for filled are 2.2. The results for CPITN, for the overall subjects (n=100), it had been observed that the resting tongue position was found as CLASS I in 51 patients, CLASS II in 30 patients and CLASS III in 19 patients. However, in group A and B, the traditional position encountered was 51% and therefore abnormal in 49%. The results for CPITN index was 3.2 for 0(No periodontal disease), 0.61 for 1(bleeding on probing), 8.4 for 2 (Calculus with plaque seen or felt by probing), 0.6 for 3(pathological pocket 4-5mm), 0.1 for 4(Pathological pocket 6mm or more), 38.4 for X(when only 1 tooth or no tooth are present). After evaluating the tongue position in complete edentulous individuals and partial edentulous individuals there was higher percentage of class I tongue position compared to class II and class III in both groups.

DISCUSSION

The retracted position is a very important diagnostic factor to be

considered in relevance to border seal and mandibular denture stability. The development of the mandibular border seal depends on continuous contact with the tissues of floor of mouth. In the retro mylohyoid region the denture border should have constant contact of the tongue with the external surface of the lingual flange of the mandibular denture. This contact of tissues and denture must be maintained at rest and function. Normal resting and functional movements of the tongue should maintain the border seal. Retraction of the tongue into the oropharynx prevents its contact with the lingual flange anteriorly and distorts the connection of tissues in the floor of the mouth and retromylohyoid region of the denture border. Due to excessive tongue movements the finished denture will not have any border seal at rest and can float result in instability of the denture. Kotsiomi E et al in their study they determined the incidence of abnormal tongue position among edentulous patients as opposed to dentate and revealed that, the prevalence of retracted tongue position was common in completely edentulous condition irrespective of duration of edentulism.

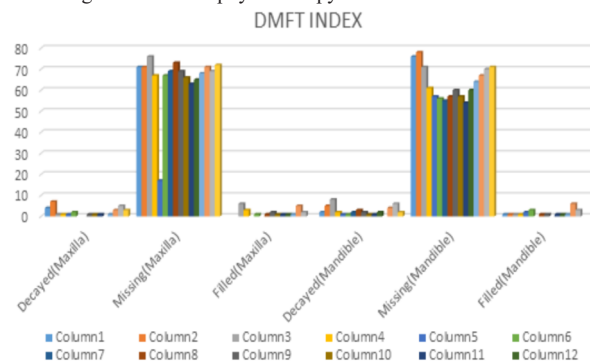
The upper and lower normal position is typically influenced by the palatal vault. When the natural teeth are missing, the tongue fills edentulous space and becomes enlarged. This study evaluated resting tongue position and correlated the duration of edentulism. It showed that prime percentage of abnormal tongue position was encountered within the groups of subjects who were edentulous for a long period. In a study by Rajeshwari et al revealed that, the sub classification between upper and lower positions did not seem to have any practical significance. The interventional method employed for the subjects with retracted tongue position, played a significant role in assuming normal resting tongue position and also showed improvement in their mandibular complete denture stability. Patients with retracted tongue position alter the dimensions of the sublingual space and disrupt the mandibular denture peripheral seal that is needed for optimal denture retention.

The fabrication of complete denture becomes more complicated when the patient is with retracted tongue position. Likeman PR, had suggested a clinical method to improve stability of mandibular denture in patients with retracted tongue position by placing a bleb of wax behind the lower central incisors and encouraged to practice the The current study followed this clinical method to enhance the tongue position with certain tongue exercises as a follow up. Patients with retracted tongue position alter the size of the sublingual space and disrupt the mandibular denture peripheral seal that's needed for optimal denture retention.

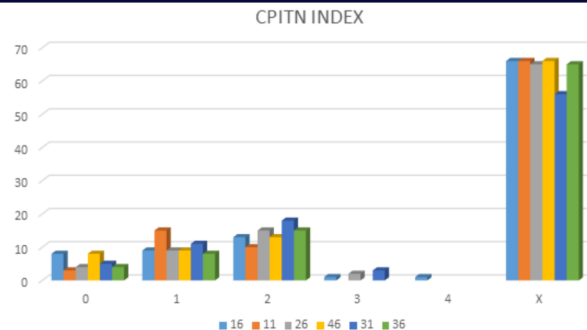
Careful evaluation of resting tongue position in patients who wear dentures helps to improve future denture retention and stability. Hence, during the examination and diagnostic phase of treatment, the tongue must be considered not only as an entity in itself but also because it will relate to a planned complete denture.

LIMITATION

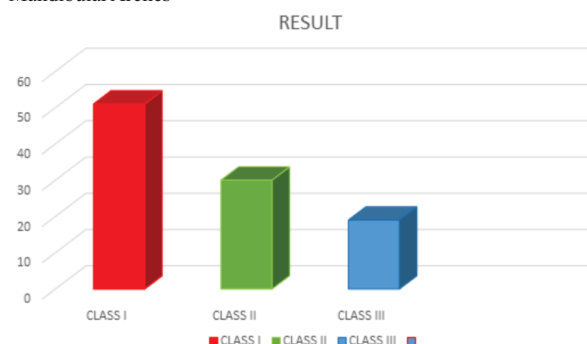
The sample size was small to represent the study population which was the limitation of this study, even though the findings help to take appropriate decision and thus, this study becomes base for conducting some more trials taking large sample size. In this study patient was taught tongue exercises to improve tongue position however long term follow up is required to clearly prove the efficacy of this procedure. There is no documented evidence regarding tongue position change following interventional physiotherapy.



Graph 1 DMFT Indexing done in maxillary and mandibular arches



Graph 2 CPITN Indexing Done In Relation To Maxillary And Mandibular Arches



Graph 3 Overall Result Of Tongue Positions In All Subjects

CONCLUSION

The highest percentage was for Long term completely edentulous subjects presenting retracted tongue position as compared to the partially edentulous subjects. After evaluating the tongue position in complete edentulous individuals and partial edentulous individuals there was increased number of class I tongue position when compared to class II and class III in both the groups.

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